

## **MULTIPLEXER HAVING IMPROVED EFFICIENCY**

### **ABSTRACT OF THE INVENTION**

5           The multiplexer includes multi-mode waveguides positioned on a base  
such that a plurality of the waveguides serve as input waveguides and one or more  
of the waveguides serve as an output waveguide. The waveguides intersect one  
another such that light signals traveling along a plurality of the input waveguides  
are combined onto an output waveguide. At least a portion of the input  
10 waveguides including a taper configured to taper the width of a light signal  
traveling along the input waveguide toward the output waveguide.